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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/632,821

08/04/2003

Yuji Odan

000624A

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38834

7590

05/07/2004

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EXAMINER

HOLLINGTON, JERMELE M

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,821

Applicant(s)

ODAN ET AL.

Examiner

Jermale M. Hollington

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0803.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 1, lines 6 and 8, after "2000" [line 6] and "09/572,254" [line 8] insert the following --now U.S. Patent No. 6614250--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takada (6201398).

Regarding claim 1, Takada discloses [see Fig. 4] an electronic circuit inspection sensor (probe assembly 600) for inspecting a conductive pattern (pattern line 520b)

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formed on an electronic circuit (board 500) [see col. 1, lines 6-22], said electronic circuit inspection sensor (600) comprising a sensor element (electrode 620) having a size less than the line width of the conductive pattern (520b) to be inspected [see Fig. 4], said sensor element (620) being arranged so as to allow the intensity of radiation (known in Takada as radiant waves) emitted from said conductive pattern (520b) to be detected [see col. 5, lines 45-47] and to allow the distribution of said radiation intensity to be detected in the form corresponding to the shape of said conductive pattern (520b). However, Takada does not disclose a plurality of sensors as claimed. It is well known to have one or more than one sensors where needed [see MPEP 2144.04 *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)]. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have Takada with more than one sensor since the duplication of the sensor of Takada would provide support to increase the inspection of radiation intensity in more than one conductive pattern located on an electronic circuit or even more than one electric circuit wherein each has a conductive pattern.

Regarding claim 2, Takada discloses said sensor element has sides (vertical surfaces 620a and 620b). However, he does not disclose each side lengths are about one third of the line width of said conductive pattern as claimed. It is well known to have different size lengths for a sensor element where needed [see MPEP 2144.04; *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984)]. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to make the side lengths of the sensor element of Takada to be any reasonable size since the dimension of the sides of

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the sensor element would not change the performance of the sensor element which is to detect radiation intensity (radiant waves in Takada) of the conductive pattern.

Regarding claims 3-4, Takada discloses said sensor element (620) is disposed above said electronic circuit (500) to entirely cover said conductive pattern (520b) [see Fig. 4].

Regarding claims 5-8, Takada discloses said sensor element (620) is positioned to said conductive pattern (520b) in a non-contact manner [see Abstract, lines 1-2].

Regarding claim 9, Takada discloses [see Fig. 9] an inspection system comprising: inspection signal supply means (oscillator 701) for supplying an AC signal to selected one of conductive patterns (pattern lines 750 and 760) formed on an electronic circuit (board 700) [see col. 8, lines 35-36] to inspect said selected conductive pattern (750 or 760); an electronic circuit inspection sensor (probe assembly 600 see Fig. 4 for further details) including a sensor element (electrode 620) having a size less than the line width of the conductive pattern (520b) to be inspected [see Fig. 4], said sensor element (620) being arranged so as to allow the intensity of radiation (known in Takada as radiant waves) emitted from said conductive pattern (520b) to be detected [see col. 5, lines 45-47] and to allow the distribution of said radiation intensity to be detected in the form corresponding to the shape of said conductive pattern (520b); pickup means (waveform processor 710) for picking up individual radiation intensities detected by respective said sensor elements (600) [see col. 7, lines 47-52]; and recognition means (personal computer 800) for recognizing a specific region of said conductive pattern (750 or 760) from which said radiation is emitted, in accordance with said radiation intensities picked up by said pickup means (710), wherein said specific region recognized by said recognition means

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(800) is compared to said conductive pattern (750 or 760) so as to allow a possible defect [known in Takada as disconnection] of said conductive pattern (750 or 760) to be identified [see Abstract lines 1-4, col.8, lines 46-56]. However, Takada does not disclose a plurality of sensors as claimed. It is well known to have one or more than one sensors where needed [see MPEP 2144.04 *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)]. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have Takada with more than one sensor since the duplication of the sensor of Takada would provide support to increase the inspection of radiation intensity in more than one conductive pattern located on an electronic circuit or even more than one electric circuit wherein each has a conductive pattern.

Conclusion

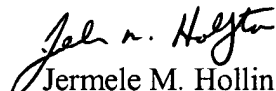
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Raab (4346384), Takayama et al (5977783), Talbot et al (6252412), Takada (6373258), Gutierrez et al (6708132) disclose a method and apparatus inspecting a board under test.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermele M. Hollington whose telephone number is (571) 272-1960. The examiner can normally be reached on M-F (9:00-4:30 EST) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (517) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jermele M. Hollington
Examiner
Art Unit 2829

JMH
April 29, 2004